W5YI

America's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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FCC Begins Inquiry into Broadband Over Power Lines (BLP)

Plug your computer into any wall socket. BPL service can go places where cable and DSL can't, especially the rural areas. But what are the interference consequences?

On April 28, 2003, the FCC released a lengthy (21-page) formal *Notice of Inquiry* (ET Docket No. 03-104) seeking public comment on "BPL" – an acronym that few people have heard of. But if the advance publicity is any indication, it could become as well known as high speed DSL and cable modem Internet access. BPL stands for *Broadband over Power Lines,* the ability to use existing electrical power lines to carry Internet and broadband services to homes and offices.

The technology promises to provide consumers with the freedom to access broadband services from any room in the house without adding or paying for additional connections by simply plugging a small $70 BPL. modem device into an existing electrical outlet. Furthermore, BPL will enable access to communications services in rural and remote areas of the country.

Background of Broadband Over Power Lines

BPL systems are new types of carrier current system that operate on an unlicensed basis under Part 15 of the Commission's rules. BPL systems use existing electrical power lines as a transmission medium to provide high-speed communications ca-

As part of its ongoing effort to promote spectrum flexibility and access to broadband services for all Americans, and to encourage multiple platforms for broadband, especially new facilities-based platforms, the FCC has issued a Notice of Inquiry seeking public comment on using existing electrical power lines to provide Internet and broadband services to homes and offices.

pabilities by coupling RF energy onto the power line.

BPL systems may operate either inside a building ("In-House BPL") or over utility poles and medium voltage electric power lines ("Access BPL"). As In-House BPL systems can use the electrical outlets available in every room of a building to transfer information between computers and between other home electronic devices, they eliminate the need to install new wires between these devices. Using this technology, consumers can readily implement communications local area networking and similar technology.

Access BPL systems can be used to provide high speed internet access and other broadband services to homes as well as providing electric utility companies with a means to more effectively manage their electric power distribution operations. Given that Access BPL can be made available in conjunction with the delivery of electric power, it may provide an effective means for "last-mile" delivery of broadband services and may offer a competitive alternative to digital subscriber line (DSL), cable modem services and other high-speed Internet technologies.

An advantage of BPL is the cost of the hardware. The equipment needed to push an Internet signal to the end of an electric wire is cheaper than the equipment needed to send a DSL signal to the end of a telephone network, said FCC engineer Bruce Franca, chief of the FCC's Office of Engineering and Technology.

The idea of using the alternating current (AC) power lines to carry information to a variety of devices is not new. A number of devices or systems already use carrier current techniques to couple radio frequency (RF) energy to the AC electrical wiring for purposes of communication. For example, AM radio systems on some school campuses employ carrier current technology; many devices intended for the home, such as intercom systems and remote controls for electrical appliances and lamps also utilize carrier current technology. And for many years, electric utilities have been using carrier current technology to monitor and control the electrical power grid.

More recently, these systems have been used to convey information in digital form, providing communications at relatively slow transmission speeds on carrier frequencies below 2 MHz. All such devices are subject to the FCC's existing Part 15 rules for low-power, unlicensed equipment operating on a non-interference basis.

The Part 15 rules limit the amount of conducted RF energy that may be injected into a building's wiring by an RF device that receives power from the commercial power source, including carrier current systems that couple RF energy onto the AC wiring for communication purposes.

This conducted energy can cause harmful interference to radio communications via two possible paths. First, the RF energy may be carried through the electrical wiring to other devices also connected to the electrical wiring.

Second, at frequencies below 30 MHz, where wavelengths exceed 10 meters, long stretches of electrical wiring can act as an antenna, permitting the RF energy to be radiated over the airwaves. Due to the low propagation loss at these frequencies, such radiated energy can cause interference to other services (such as Amateur Radio) at considerable distances.

The existing Part 15 rules cover two types of power line equipment, carrier current systems and power line carrier systems. A carrier current system is defined as a system, or part of a system, that transmits radio frequency energy by conduction over the electric power line to a receiver also connected to the same power line.

A carrier current system can be designed so that the signals are received by conduction directly from connection to the electric power line (unintentional radiator), or the signals are received over the air, due to radiation of the radio frequency signals from the power line (an intentional radiator).

Until recently, carrier current devices have operated generally on frequencies below 2 MHz with limited communications capabilities over the electric power wiring. The power line is a noisy communications medium, characterized by several unpredictable and strong forms of interference generated by devices such as dimmer switches, motorized electrical appliances and computers.

Because of these inherent non-linear characteristics, reliable high-speed communications over power lines have been difficult to achieve. However, the availability of faster chip sets and the development of sophisticated modulation schemes have produced new designs that can overcome these earlier technical obstacles, e.g., extreme vulnerability to power line noise, which causes drop-off in transmission speeds and disruptions due to random home power usage of other appliances.

New BPL devices operate on multiple carriers that are spread over a wide spectrum (e.g., from 4.5 MHz to 21 MHz), with adaptive algorithms to counter the noise in the line. Data transmission speeds rated at 14 Mbps and higher have been claimed for in-house communications.

BPL devices intended to carry high-speed broadband services to neighborhoods over a utility's power lines have claimed speeds comparable to DSL and cable in actual BPL experimental installations. This new generation of high-speed BPL devices that use wide spectrum was not contemplated under the existing Part 15 rules when they were formulated.

The FCC said that manufacturers of BPL equipment are free to continue to deploy their networks in conformance with existing Part 15 rules.

Looking toward the future, however, the FCC wants to know if some rule changes might be necessary to further advance BPL deployment. Some of the information the Commission requests in the *Inquiry* concerns:

- The current state of high speed BPL technology;
- The potential interference effects, if any, on authorized spectrum users;
- Test results from BPL experimental sites;
- The appropriate measurement procedure for testing emission characteristics for all types of carrier current systems; and any...
- Changes that may be needed in the Part 15 technical rules and the equipment approval process to foster the development of BPL and to ensure that interference is not caused to other services.

FCC Chairman visits residential BPL site

Broadband use grew 6 percent over the last six months to 28 percent of all online households, according to comScore Networks, a figure that will jump to 40 percent by 2005, according to Jupiter Research.

FCC chairman Mike Powell is particularly high on the future of Broadband over Power Line systems. He said it "...had the potential to provide consumers with an ever present third broadband pipe to the home."

He recently witnessed first hand at a suburban Potomac, Maryland home, the potential of BPL. "Broadband

over power lines can offer consumers freedom to access broadband services from any room in their home without need to pay for additional wiring, by simply plugging an adaptor into an existing electrical outlet," Powell said.

"There have been a couple of questions about whether the interference protections are appropriate and whether they are inhibitors to the growth of the technology and whether there are concerns that we have yet to identify."

He added, however, that the interference issues did not need to be cleared up before a technology provider could provide commercial service. "I have an attitude that if the government doesn't say no, you keep going, and I hope these guys keep going."

"Power line technology also provides for useful redundancy and diversity in communications networks that are key aspects of secure homeland communications," Powell said.

He said that the *Notice of Inquiry* "...explores ways to update our rules to ensure that regulatory uncertainty does not in any way hinder the deployment of these new services. Ultimately it will be for the marketplace to decide how broadband over power lines fits into tomorrow's competitive telecommunications landscape, but we welcome them to the frontier of the digital migration."

Not only is FCC Chairman Mike Powell impressed by the potential of BPL technology, Commissioner Jonathan Adelstein issued a separate statement in which he characterized the future of BPL as "enormous."

He said one of his top priorities is to speed the deployment of broadband. "While we must be mindful of harmful interference, we cannot let unsupported claims stand in the way of such an innovation as BPL systems. Provided that the engineering bears out, I believe that we need to push the boundaries to accommodate new technologies."

Commissioner Mike Copps agreed saying he supported the Inquiry "...to gather information critical to assisting the Commission to play a constructive role in making this a reality without causing problems, such as unacceptable interference, to existing radio devices."

Dollars and sense of BPL

Electronics makers are pairing with power companies around the country to test equipment that allows electric lines and old-fashioned power outlets to deliver high-speed Internet services.

If the tests end as well as company executives expect, cable and telephone companies may start facing competition by the end of this year from an industry that reaches into nearly every home and office in the country.

A dozen power companies nationwide in several states are experimenting with the technology. Alan Shark, president of the Powerline Communications Association, which represents utility interests in high-speed Internet service, says powerline broadband could have up to 3 million U.S. subscribers by the end of 2004.

Power companies and their partners expect to beat their rivals on price, said Brett Kilbourne, a spokesman for the United Powering Council, a non-profit advocacy group organized by utilities and technology companies.

Cable and telephone companies typically charge $45 to $55 a month for high-speed service. Comcast Cable has 3.6 million high-speed Internet customers today and is wired to deliver the service to up to 30 million homes in the United States.

Several utilities claim they can provide the service for as little as $30 per month. Utilities will be able to charge that amount because it costs them less to provide the service, Kilbourne said.

ARRL "skeptical" about interference-free B.L.

A couple of days after the FCC adopted the *Notice of Inquiry,* the American Radio Relay League said in a published release that they believed BPL would be an interference threat to HF Amateur Radio communications "...since BPL would apply high-frequency RF to parts of the power grid."

"Entire communities will be affected, so every amateur in that community could have part of the radiating system 'next door' on the power wiring on his or her street," cautioned ARRL Lab Supervisor Ed Hare, W1RFI, who chairs an IEEE PLC Work Group on electromagnetic compatibility

ARRL CEO David Sumner, K1ZZ, mentioned in the October 2002 issue of QST that he also doubted power line communications would be interference-free. "What may be a fine transmission line at 60 Hertz looks more like an antenna at HF," he said. " And that's a matter of physics, not economics. Radio smog results from putting RF where it doesn't belong."

Hare says BPL would be a significant source of interference "...because overhead electrical wiring is a much better antenna than the electrical wiring within a building." Even though manufacturers included 30-dB notches for the ham bands at ARRL request in their equipment, Hare believes this to be insufficient protection for the Amateur Radio bands.

His own analysis using computer models of simple power wiring and estimates of the levels of PLC signals suggest "...a significant increase in noise levels" from deployed BPL/PLC systems.

Tests of BPL are under way in several states and ARRL Lab personnel will be visiting some of the test cities to take field measurements of the potential for interference to Amateur Radio operations. The League also mentioned that BPL technology already deployed in other countries had resulted in interference complaints from ham operators.

The ARRL has prepared an excellent BPL Web page at <www.arrl.org/tis/info/HTML/plc/> that contains all of the League's BPL information and links to a number of sites and studies that show that the technology poses a significant interference potential to Amateur Radio.

CUTTING EDGE TECHNOLOGY

Disney will begin testing a video on demand service, dubbed "Movie Beam," this fall. The service will allow consumers to view up to 100 films when they wish. Unlike current VOD services, which send movie files over the Internet, Disney's system will use the same broadcast spectrum the company uses to send its ABC Television network to homes. Movies will be sent to a special set-top box.

Television networks will be submitting sealed bids next month for the broadcast rights to carry the 2010 and 2012 Olympics. For the first time, included will be all ancillary rights in one package.

The big problem is the impact and consumer acceptance of emerging technology advances, such as the Internet, HDTV, interactive television, wireless, video-on demand and unforseen others that might emerge during the next seven to nine years.

The International Olympic Committee has already awarded NBC the network rights through the 2008 Summer Games in Beijing. NBC paid about $1.5 billion for the 2006 Winter Games and 2008 Summer Games.

All of the major networks are said to be interested in the 2010 and 2012 Olympics, as is Turner Broadcasting System. The contenders have strong cable and satellite outlets to help subsidize the costs.

Beginning next year, Congress has mandated the use of biometric technology to verify the identities of foreign visitors as they enter and depart the United States. The new system is nicknamed "U.S. VISIT," an acronym for Visitor and Immigrant Status Indication Technology.

The new "smart borders" program is intended to block the entry of terrorists and smugglers into the United States and to verify that foreign visitors, workers and students leave on schedule. The equipment will be installed at international airports, border crossings and seaports.

The computerized fingerprint, facial-recognition and other bodily feature identification equipment will be in place by the end of this year. The new system will monitor only foreign immigrant entry and exit. There are more than 35 million yearly foreign visitors to the United States.

At the end of May, immigrants wanting to renew or replace green cards or apply for work permits will be able to do so electronically, the Homeland Security Department recently said.

EMERGING ELECTRONIC TRENDS

Will video on demand spell the end of DVDs? In the future, most video entertainment will be downloaded rather than recorded media. According to a recent research report by Informa Media Group, PPV (Pay Per View) and VOD (Video on Demand) programming will surge in the coming years. And consumer spending on recorded media (DVD, videocassettes) will show little or no growth at all.

The SARS epidemic is contributing to the shift to technology from air travel. Interactive videoconferencing is getting the job done and saving corporations a lot of time and money.

Though teleconferencing has been around for years, new technology is making it easier and cheaper than ever.

The price of installing a videoconferencing system in a corporate office has fallen to around $9,000 today (from $27,000 in 1998); the cost per minute to just 80 cents (from $1.60.)

The two largest suppliers of videoconferencing equipment (AT&T and MCI) do an estimated $500 million each in teleconferencing business annually.

Audioconferencing, videoconferencing and Web conferencing has jumped more than 35 percent since the Sept. 11 terrorist attacks.

With so many television channels now available (many of which are pay-per- view) ...the largest two premium network channels – Home Box Office and Showtime – are feeling the pinch. Both are laying off employees.

Multi-system cable television operators (MSOs) have spent billions of dollars over the last five years, rapidly upgrading plants to match the channel capacity and digital quality of Direct Broadcast Satellite (DBS). As a result, digital cable adoption has been dramatic, reaching 18.9 million homes by the end of 2002.

As cable operators deploy new services, such as video-on-demand (VOD), interactive and enhanced TV, personal video recorders (PVRs), and high-definition TV (HDTV), the Yankee Group projects digital cable penetration will grow to 39 million (about 40 percent) of all TV homes by year-end 2007.

The jury is still out on whether there will be a charge for Wi-Fi access to the Internet from your laptop computer. Wi-Fi is radio signal that beams Internet connections out 300 feet. Attach it to a broadband modem and any nearby computers equipped with Wi-Fi receptors can log on to the Net.

Some outlets (like Starbucks and Kinkos charge about $20.00 a month) others (like Schlotzskys) offer it free to their customers. And McDonald's is offering a free hour of Wi-Fi with each Extra Value Meal.

By the way, half of all the world's Wi-Fi "hotspots" (access points) are located in South Korea! And Korea has by far the highest percentage of broadband subscribers -- 10.7 million households – which equates to 70% penetration of Korea's 48 million population.

According to a recent poll by Harris Interactive for AT&T Wireless, a majority (61%) of the nearly half non-wireless owners in the USA wished they had a cell phone for emergencies, when they were running late, when lost or just sitting in traffic. Of those who said they didn't qualify for traditional service plans, the majority (71%) said they had poor or no credit history (18%).

AT&T has launched a new program called GoPhone on May 5th for cell phone users who don't want contracts, credit checks or deposits. Customers need only purchase a Nokia 3590 GSM cell phone and have a valid Debit or Credit card to have service activated.

GoPhone offers unlimited night and weekend calling, domestic long distance, and roaming from AT&T Wireless' national service area. Calling plans range from $19.99 to $49.99 a month which is billed in advance.

The objective is to tap the 42% of U.S. households who do not have wireless

telephone service but have a credit card. Many are teenagers, young adults or people with bad financial histories. The service should appeal to some of the 4 million customers AT&T turned away last year because of poor credit.

GoPhone costs $89.99 off the shelf at some 10,000 retail stories nationwide ...including convenience stores. AT&T is offering a $20 instant rebate if the device is purchased at: <www.attws.com>

According to a Meta Group survey, 80% of business people believe email is more valuable than the telephone for communication. The researchers called the result "startling."

Email's principal strengths were cited as the ability to reach multiple workgroups or individuals at the same time, faster communication and creation of a written record.

Reasons For Preferring E-mail Over Phone.

- Response flexibility 84%
- Can communicate with multiple parties 83%
- Paper trail is created 78%
- Can communicate more quickly 40%
- More productive 29%
- Easier for global communications 25%
- Proper context 24%
- More targeted, less socializing 22%

Meta researchers also said their survey of 387 organizations found email's ability to send attached documents contributed to a 50% decline in the number of pages faxed over the past 5 years.

COMPUTERS & SOFTWARE

Four college students at Princeton, Michigan Technological University and Rensselaer Polytechnic Institute have agreed to pay the Recording Industry Association of America $12,000 to $17,000 each over the next three years for regularly download music over the Internet without paying.

The RIAA suit charged the students with operating "mini-Napsters" on their campus computer networks and illegally supplying popular music for other students to copy.

The association said it was seeking to send a warning to students. Many college administrators have banned the use of file-sharing software.

Microsoft and Hewlett-Packard have developed a next-genera-

tion personal computer that has the ability to handle phones calls, faxes, cell phones, e-mail, instant messaging and video conferencing. The objective of the communications-based PC is enable office workers to be more productive.

The PC, described as the Next Generation Enterprise Personal Computer, is code-named "Athens." It sports a wide (23-inch) flat-panel display with a CD-ROM drive, video camera and telephone handset tacked onto its sides, so users can hold videoconferences, take phone calls and handle the rest of their daily Web browsing and e-mail through one desktop.

The machine will even play music for you while you're working, which it automatically mutes when you receive an important phone call.

The Athens PC is expected to be available to the public in 2004.

GADGETS & GIZMOS

The digital video recorder (DVR) will ultimately be the most successful new TV technology, according to an exclusive TelevisionWeek survey of 100 television executives. In fact, the executives chose the DVR by a 2-to-1 margin over the second-place finisher, high-definition TV. The DVR permits viewers to pause live TV, fast-forward past commercials and record up to 80 hours of programming without a video-tape.

Samsung (Korea) says it will be shipping the world's smallest and lightest GSM wristphone to Europe in time for Christmas selling. The CDMA-based wrist cell phone (with batteries included weighs less than 2 oz.) has 80 hours of standby time and 90 minutes of call time.

The wristphone operates in the 900 MHz and 1800 MHz bands, and provides Bluetooth connections for headsets and PDAs. It has a built in speakerphone, voice activated dialing and a full color screen. Pricing not yet announced.

Japan's DoCoMo also has a new 4-ounce "Wristomo" i-mode phone ($310) that operates on its PHS (Personal Handyphone System) network.

On May 7th the company sold 1,000 of the Wristomo devices, which is all of the initial batch it was offering for sale, in

less than 20 minutes. Internet access is provided as well as voice calls. Battery provides two hours of talk time; 200 hours of standby. You can see a photo of it at: <www.wristomo.com>. NTT DoCoMo Inc, is Japan's leading mobile phone company.

And not to be outdone, Siemens (Germany) is also showing a prototype GSM wristwatch phone.

DoCoMo also has a new line of 3G mobile phone handsets that can take and send 24-second video clips. The new phone helped DoCoMo enroll over 300,000 users for its FOMA service. The firm expects a million customers by March 2004.

DoCoMo is also developing phones that can used to make purchases at vending machines, train stations and convenience stores which are charged to a customer's monthly phone bill. DoCoMo would earn a processing fee on each purchase.

You can get the latest electronic toys and gadgets shipped direct from Japan by going to: <www.Japan-Direct.com>. Many of them are only available in Japan. All have basic English manuals and all operating controls are in English. Shipping is by Japanese overnight mail which links to the USA's overnight mail postal service. Customs duties generally do not apply if the item purchased is a gift.

INTERNET & WORLD WIDE WEB

The National Rifle Association is in the process of opening an anti-terror website at <www.nrasafe.com>. But it won't be free. Cost has not been disclosed by NRA members will get a lower rate. It will tell people how to deal with biotoxins, chemical attacks and other weapons of mass destruction.

High speed Internet for the "have-nots." The International Tele-communication Union is considering making a 1 GHz block of spectrum in the C- and Ku-bands available worldwide to bring broadband via satellite to less developed regions of the globe.

At the annual convention of the Newspaper Association of America, Microsoft CEO Bill Gates said he "...sees online newspaper as one that takes all the strengths (of current newspapers) ...and then adds in new capabilities." He warned that "Publishers who view their Web sites as a side venture for their print editions are ignoring the next generation of readers."

Microsoft e-periodicals team demonstrated programs under development, including software that makes articles as clear and easy to read on a computer screen as in the paper. The idea is to both duplicate the reader's experience from the printed publication to the computer screen and allow for extra features. For example, "...people can not only read about an upcoming concert, but they can hear audio clips and even purchase tickets."

According to Hithouse North America, now that the war is over, traffic to online retailers is rising! Traffic to online retailers jumped in April, mirroring the recent rise in the Consumer Confidence Index.

As U.S. fortunes in the war rose, traffic to retailer sites also increased ...about 6 percent overall. The retail sectors which have seen the biggest increases in relative share of visits as a proportion of all U.S. traffic are; Computers (+ 33%), Appliances & Electronics (+32%), Video & Games (+24%), House & Garden (+23%), and Wholesale & Relationship Sales (+23%).

Nielsen/NetRatings said the top U.S. Web news spot in March was CNN (with 26.25 million U.S. visitors); MSNBC was second with 24.33 million visits. The New York Times, Fox News, the Washington Post, ABC News and USA Today all showed massive gains.

Web site gives students a chance to grade their teachers. Junior high and high school students nationwide are invited to rate their teachers on a scale of one to five, based on easiness, helpfulness and clarity at: <www.-ratemyteachers.com>.

There are more than 1.5 million ratings online on more than 260,000 teachers at nearly 16,000 U.S. schools. About 20 thousand ratings are added daily! After two years online, RateMyTeachers.com gets up to a half million hits per day. Not all teachers like the idea and some schools routinely block the site.

<www.ratemyprofessors.com> allows college students to do the same thing. More than 3,000 colleges and universities are listed.

WASHINGTON WHISPERS

On April 29, KVMD-TV (Twenty-nine Palms, Calif.), became the second station in the United States to obtain approval to terminate analog television broadcasting and transition to all-digital transmission.

WWAC in Atlantic City, N.J., is the first station in the country to complete the digital-TV transition. That station turned over its analog license to the FCC Dec. 13, 2002.

The transition to digital television still going very poorly! According to the Association of Public Television Stations, less than one-half of the nation's 357 public television stations met the May 1st federal deadline to begin transmitting digital-TV signals.

About 150 public broadcasting stations made the transition to DTV. The stations that didn't make it filed extensions with the FCC.

The 195 extensions that were filed cited weather, legal, technical, construction and financial difficulties. Installation-crew shortages and equipment backlogs were reported by 80 percent of the seeking six-month extensions to complete digital-TV-facilities construction.

The FCC's Media Bureau can grant a maximum, of two half-year extensions. Additional grants of time must be approved by the agency's five commissioners.

Under FCC rules, commercial stations faced a similar deadline May 1, 2002, but 843 – nearly two-thirds – sought extensions of time.

The FTC has barred two companies from selling cell phone radiation shields. Comstar Communications (West Sacramento, CA) marketed "Wave-Shield," a device that was alleged to block up to 99 percent of radiation. Meristar International (Boca Raton, FL) sold shields called "SafeTShield" and "NoDanger."

The FTC charged the companies with making false and unsubstantiated scientific claims about the shields that fit over cellular phone earpieces. The government says the shields do not work as advertised and may cause wireless devices to emit even more energy.

Major studies have found no harmful effects of cell phones, but longer-term research continues. Even if a danger is found, products that block only the phone's earpiece are ineffective because the entire phone emits radiation, the FTC says.

AMATEUR RADIO

The *New York Times* ran a feature article on the communications range of FRS (Family Radio Service) two-way radios. It seems that manufacturers are all claiming that their walkie-talkie radios have a longer range than competing brands. Instead of giving an exact range, they use terms like "up to" a seven mile range.

NYT tested Audiovox, Cobra, Microtalk, Midland and Motorola and found that the actual predictable range is more like a mile. Even over unobstructed open water the best range was about 3 miles

"True, that 'seven mile' business may be the greatest bit of marketing hyperbole since P. T. Barnum. But even with only a mile of range that you can count on (on land, anyway), they're still great for malls, theme parks, ski slopes, hikes, car caravans, and other short-range situations," the New York Times said.

Scott E. Kamm, NØUGN (of Sioux City, Iowa and Waterbury, Nebraska) has been ordered by the FCC to pay a $12,000 fine by June 5, 2003 for willful and repeated intentional interference to 2-meter communications on 146.31 MHz, transmission of music on his amateur station, and failure to identify his station by his assigned call sign.

The FCC affirmed the forfeiture when Kamm failed to respond to a Notice of Apparent Liability for Forfeiture (NAL) issued the FCC's Kansas City field office last January. If the forfeiture is not paid within the 30 day period, the case may be referred to the Department of Justice.

The May 11th Springfield (Missouri) News-Leader newspaper carried an unusual feature story about ham operators using uncommon

antennas to practice skills for disasters and security.

"Members of the Southwest Missouri Amateur Radio Club gathered outside Evangel University to practice their homeland-security communication skills. The goal: Construct makeshift antennas to use if real ones are destroyed during a terrorist attack or natural disaster, such as the recent melee of tornadoes."

The radio club called it the "strange antenna challenge." They even applied for a special event one-by-one call sign (KØS as in Kilo Zero Strange) for their antenna test. "Right now we're using an extension ladder and a multipurpose ladder," Bill Chambers, NØMBW said.

"Throughout the day, the radio operators used shopping carts, motorcycles, cars and metal dollies to capture signals and conduct broadcasts."

"We tried all kinds of things. We used a dog kennel just for practice and we talked with people in New York and Maryland," club president Erik Weaver, NØEW said, adding that almost anything metal can be used as an antenna. Operators also used alternative power sources, such as batteries and portable generators."

"Within two hours Saturday, the group had spoken with other operators from Oregon, Pennsylvania, Florida, California and Arizona."

University of Wisconsin at Stout Students Pass Amateur Radio Exam – Receive their call signs within 24 hours using electronic submission.

On Tuesday, April 29, 81 students of Dr. John Weiss, WB8KLO, of UW-Stout's College of Technology, Engineering and Management sat for and passed their FCC Technician Class amateur radio license exam and received their amateur radio license grants within 24 hours of sitting for the exam. In so doing, the students became the largest test session yet that has employed online submission of test results and applicant data to the FCC.

Weiss, an Associate Professor at UW-Stout, specializes in advanced telecommunications technology and teaches courses in Telecommunications Administration, Policy & Regulation, Telephony and Networking. He is also an attorney and a member of the Federal Communications Bar Association as well as the American Radio Relay League. His wife, Diana is also a licensed ham operator.

The examination team was coordinated by ARRL life member John Burningham, WB8PUF, Associate Professor UW-Stout's communication, education and training dept., and included Weiss; Jon Fuller, W9JHF, Student Life Services; and UW-Stout students: Andy Wagner, KB9TAC and Scott Littfin, NØEDV.

Weiss gave his students the option of earning their radio licenses in partial fulfillment of class requirements. "This is a great way to broaden the experience of students in my Introduction to Telephony class," he said. "Students study FCC rules and regulations, basic radio communications technology, and proper operating procedure in order to earn their right to operate an amateur radio station."

"Students that do not own their own amateur radio equipment are able to use their new license grants immediately, employing their laptops and a software program called EchoLink that links amateur radio stations around the world using new voice over IP technology."

"Earning their license gives them something else to put on their resume and, for some, it will serve as an introduction to a life long passion. Some of the newly licensed students are already on the air operating."

The rapid license grants were made possible by using newly available VE-to-VEC-to-FCC electronic submission technology developed by the W5YI volunteer examination coordinator. While students were waiting for their test results, they were treated to pizza by the examining team, which helped ease the anxiety of waiting for scores. At the end of the night, many smiles were seen on the faces of the large number of successful candidates.

Using password-protected electronic forms posted to the W5YI-VEC website, John Burningham, WB8PUF began keying in the test results right after the exam session and all 81 applications were waiting for the VEC Office when they opened the following morning. After routine screening, all applications were retransmitted to the FCC. Within an hour, the FCC issued the licenses and call signs which were immediately forwarded over the Internet to Burningham.

In honor of Mother's Day, MARS and MCI provided free long distance telephone calls to the United States for military personnel in the Army, Navy, Air Force, Marine Corps and Coast Guard stationed abroad. The holiday call-

ing program, provided by MCI and the Armed Forces Military Radio Affiliate Systems (MARS),was available May 9-12.

Using two-way radio equipment, military personnel located overseas contacted one of the 33 designated MARS stations in the United States. The MARS operators then contacted the military member's family and friends in the U.S. and connected the two parties using MCI's long distance network.

MARS, founded more than 45 years ago, consists of approximately 8,000 volunteer civilian amateur radio operators and volunteer military members at military bases and aboard ships.

A news story in the May 6th Dayton (Ohio) Daily News said that "Hamvention organizers are in negotiations for a two-year contract at Hara Arena and do not plan to move the annual gathering of amateur radio enthusiasts from the Dayton area."

"Garry Matthews, KB8GOL, production manager for the show, said organizers are pleased with Hara and want to keep the show in the area. No other local venue can comfortably hold Hamvention at its current size, making a move unlikely."

During the past year (ending May 1, 2003), 5718 Vanity station call signs were issued ...mostly to Extra Class (2,145 or 38% of the total) and Technician Class operators (1938 or 34%.). An average of 477 Vanity call signs are issued monthly.

A total of 20,247 new (first time licensed) radioamateurs joined the ham radio ranks for the first time during the year ended May 1, 2003. (18,967 joined at the Technician level.) An average of 1,688 new amateurs passed their first exams monthly during the trailing year versus 1,580 a year ago ...a 6.8% increase.

HAM OPERATOR CENSUS - ALL CLASSES

Month/May	Total	% Increase
May 2003	685,458	0.18%
May 2002	684,235	0.07%
May 2001	683,790	0.95%
May 2000	677,349	0.29%
May 1999	675,376	0.21%
May 1998	673,973	

Does not include licensees who license is in the two year grace period.

W5YI REPORT
America's Oldest Ham Radio Newsletter

CENSUS OF FCC LICENSED AMATEUR RADIO OPERATORS BY STATE & LICENSE CLASS

State	Name	Extra	Advanced	General	Tech Plus	Tech.	Novice	Total
AK	Alaska	480	362	670	280	1332	113	3237
AL	Alabama	1667	1250	2118	990	4262	356	10643
AR	Arkansas	1066	793	1290	612	3178	244	7183
AZ	Arizona	2402	2047	3138	1510	6253	526	15876
CA	California	11768	10951	17198	10377	44589	4963	99846
CO	Colorado	1987	1591	2479	1244	4771	470	12542
CT	Connecticut	1417	1073	1888	844	2380	634	8236
DC	District of Columbia	71	70	107	35	108	29	420
DE	Delaware	251	172	341	157	437	69	1427
FL	Florida	6096	6086	10058	3995	11287	2326	39848
GA	Georgia	2319	1966	3071	1537	5396	564	14853
HI	Hawaii	508	371	587	383	1336	170	3355
IA	Iowa	1063	1029	1536	571	1958	344	6501
ID	Idaho	611	429	893	433	2097	131	4594
IL	Illinois	3579	2862	5050	2310	7552	1359	22712
IN	Indiana	2160	1755	3240	1612	5619	808	15194
KS	Kansas	1023	819	1630	711	2657	406	7246
KY	Kentucky	1314	915	1706	846	3628	425	8834
LA	Louisiana	1057	974	1414	641	2198	308	6592
MA	Massachusetts	2545	1910	3322	1580	4178	897	14432
MD	Maryland	2022	1568	2425	1113	3453	598	11179
ME	Maine	714	520	1083	400	1546	215	4478
MI	Michigan	3323	2546	4680	2089	7812	1024	21474
MN	Minnesota	1781	1422	2454	976	3806	511	10950
MO	Missouri	2000	1611	2783	1180	4622	573	12769
MS	Mississippi	743	621	958	385	1736	160	4603
MT	Montana	475	349	674	267	1210	150	3125
NC	North Carolina	2928	2290	3768	1862	6993	968	18809
ND	North Dakota	222	162	357	178	615	64	1598
NE	Nebraska	566	544	1019	379	1235	193	3936
NH	New Hampshire	942	571	1084	495	1723	243	5058
NJ	New Jersey	2658	2206	3429	1776	4295	1047	15411
NM	New Mexico	879	678	1019	435	2455	137	5603
NV	Nevada	769	587	1082	446	1947	168	4999
NY	New York	4750	3941	6814	3406	10252	2411	31574
OH	Ohio	4537	3434	6265	3513	10896	1684	30329
OK	Oklahoma	1363	1058	1632	888	4055	313	9309
OR	Oregon	1887	1606	3052	1298	5097	629	13569
PA	Pennsylvania	4169	3242	5565	2630	7491	1432	24529
PR	Puerto Rico	375	469	862	1290	1616	1314	5926
RI	Rhode Island	396	259	560	306	637	152	2310
SC	South Carolina	1154	862	1634	655	2500	279	7084
SD	South Dakota	278	240	391	128	509	96	1642
TN	Tennessee	2252	1751	2865	1473	5364	545	14250
TX	Texas	6964	5612	8533	4065	16088	1548	42810
UT	Utah	853	586	1103	890	5667	231	9330
VA	Virginia	3016	2262	3513	1631	5907	808	17137
VI	Virgin Islands	52	23	83	23	91	17	289
VT	Vermont	381	228	462	192	891	85	2239
WA	Washington	3448	2796	5068	2562	9967	1058	24899
WI	Wisconsin	1711	1346	2369	925	4028	487	10866
WV	West Virginia	858	567	1103	554	3251	264	6597
WY	Wyoming	257	179	341	144	640	68	1629
Other	(See below)	255	100	220	140	810	52	1577
Total	May 1, 2003	102362	83661	140986	69362	254421	34666	685458
Total	May 1, 2002	101155	85483	138971	73687	246694	38245	684235

Other includes APO (AA, AE, AP), American Samoa, Guam, and N. Mariana Island

Gleanings from the FTC Spam Forum

The Federal Trade Commission hosted a three day Spam Forum at their Washington, DC headquarters beginning April 30. The event, open to the public, provided a forum for consumers, industry, government and technology to come together to address the spam problem.

FTC Chairman Timothy J. Muris called it a historic gathering. In his opening remarks, Muris said that unfortunately, there seems to be more talk than action on the spam issue today and that the forum would go a long way to shedding some light on the problem.

According to Muris, the mistake most people make is compare spam to telemarketing, which does not contain nearly as much deception (misleading subject lines, forged header information, etc.) or adult content, which makes it markedly different from any other form of communication, as well as making it a very immediate problem. There are three components to the solution: law enforcement, education and research, he said.

Muris said a recent FTC study found that two-thirds of spam messages contain one or more fraudulent elements. And some 18 percent of all the spam the F.T.C. studied involved pornography or other sexually related products.

• "Things are worse than we imagined," said Eileen Harrington, the FTC's director of marketing practices. "There is consensus that the problem has reached a tipping point. If there are not immediate improvements implemented across the board by technologists, service providers and perhaps lawmakers, e-mail is at risk of being run into the ground."

• The various panels included discussions of E-mail Address Gathering, Falsity in Sending Spam, Open Relays/Open Proxies/Form Mail Scripts, The Economics of Spam, Blacklists, Best Practices, Wireless Spam, Federal and State Legislation, International Perspectives, Litigation Challenges and Technological Solutions to Spam.

• Panelists couldn't even agree on the definition of spam, with some anti-spam activists and companies saying spam is all unsolicited bulk e-mail, and some e-mail marketers saying spam should be defined more narrowly, as unsolicited commercial e-mail that includes false subject lines or misleading e-mail headers.

• The highlight of the first day of a three-day forum was a series of demonstrations of the tools and techniques used by spammers to reach the broadest audience while evading detection.

The most prevalent spam technology takes advantage of weaknesses in innocent computers attached to the Internet, which can be made to act as relays. The spammers use programs that investigate the millions of computers connected to the Internet to find those that have improperly configured software. Spammers can make their messages appear to come from these unprotected computers, often without their owners being aware their machines have been tapped.

Many of these vulnerable computers are owned by businesses, but increasingly spammers are taking advantage of home computers that are permanently connected to the Internet by high-speed, or broadband, access.

• Spam now accounts for between 15 percent and 20 percent of incoming e-mail at a typical corporation, reaching 30 percent at ISPs. Antispam vendor Brightmail believes that the figure is even higher, exceeding 40 percent. Research firm eMarketer estimating that 76 billion spam e-mails will be sent worldwide this year.

• According to consulting firm Ferris Research, the cost of spam to U.S. corporations, in the form of lost productivity, payroll costs, consumption of IT (Information Technology) resources and help-desk support, will reach $10 billion this year.

• Panelists agreed that spam caused huge losses of time, productivity and money. One company (Nortel Networks) said each piece of spam costs them $1.

• Most ISPs are currently spending huge amounts of time and capital on fighting spam, to make sure their users don't drown in unwanted email. To that end, most ISPs employ various email filters and blockers, which continue to raise concern, and even First Amendment issues.

• Sen. Charles Schumer, D-N.Y., is proposing a national "do-not-spam" registry similar to a service that's to start that blocks unwanted telemarketing calls.

Another proposal "Controlling the Assault of Non-Solicited Pornography and Marketing Act (CAN-SPAM), by Sens. Conrad Burns, R-Mont., and Ron Wyden, D-Ore., would require spam to have valid return addresses and allow fines of up to US$10 per e-mail to senders of unsolicited e-mail who refuse to stop.

Rep. Zoe Lofgren, D-Calif., said she would seek federal legislation offering rewards for people who help track down spammers.

A tough new anti-spam law passed in Virginia allows authorities to seize the assets earned from spamming while imposing up to five years in prison. The penalties can be applied even if both the spammer and target live elsewhere, since most of the nation's traffic travels through Virginia's communications hubs. The law also outlaws tools that can automate spam, as well as the forging of e-mail headers.

• It was widely agreed that while legislation will help to reduce spam, it is not the answer. Any U.S. law would do little to stop spam from other countries and the only solution is blocking it with new technology.

• "There are just too many spammers out there to leave enforcement to government agencies," said Jason Catlett, President of Junkbusters Corp. "People who are

spammed should to be able to sue in small claims court, just as they can sue junk faxers and telemarketers who call at 7a.m.

• A coalition of e-mail service providers plan to develop a registry intended to separate the legitimate bulk e-mailers from the spammers. Vendors who pass will get a seal of approval. The certification process will require bulk e-mailers to reveal their identities, include all sender information in mail headers, and an authentication system that provides a secure proof of identity in the header. Companies sending unsolicited commercial e-mail that do not want to be part of the registry would be blacklisted and spam filters employed.

• But Spam filters frequently don't work. Many panelists at the Spam Forum said the main problem with ISP technologies that block or filter email is that legitimate messages never make it to the intended recipient. More than one-third agreed that they recently have not received a requested email sent to them by a trusted source.

• Several states require spam e-mail to have a subject line beginning with "ADV" to identify it as advertising. The FTC found this law is being widely ignored and that less than 2 percent of spam used this label

• The Direct Marketing Association (DMA) said it opposed the practice of automatic algorithmic email addressing, also known as dictionary attacks, that spammers use in mass untargeted marketing campaigns or in order to ascertain live addresses. The DMA also said messages should not be sent when email addresses have been captured surreptitiously - a practice often called 'harvesting.' "Both practices undercut email as a valuable business communications tool," DMA said. The organization still believes, however, that unsolicited e-mail is a crucial part of e-mail marketing. That comment was met with a round of 'boos.'

• Rob Courtney, a policy analyst with the Center for Democracy and Technology, cited a study released by his group in mid-March that suggested e-mail harvesting programs are fairly easy to fool by spelling out "at" and "dot" in e-mail addresses on Web sites.

• Don't unsubscribe to unsolicited email. Unsubscribing simply proves that your e-mail address is valid and will result in still more spam. Best remedy is to hit the delete key. Deleting spam e-mails over the course of a year will amount to nearly $4 billion is lost productivity and payroll costs in 2003.

• Spam generally is generally thought to not include messages sent by companies from whom you have purchased something or have an ongoing business relationship. But 53% of consumers disagreed. They define spam as any unsolicited, unwanted commercial e-mail regardless of the circumstances. Also considered spam are unwanted jokes, fund-raising solicitations, and political comments "sent by someone you know."

• It is not only the unsavory and get-rich-quick e-mails that are the problem. "Email is still winning marketers from traditional companies because it offers a better ROI." (Return on Investment.) Spam is very cheap to send. eMarketer estimates the cost at 32 cents per 100,000 e-mails.

• Spam mailings are apparently successful. A study revealed that 8% of consumers (about one person in twelve) surveyed said they have purchased a product promoted to them by spam. The Direct Marketing Association, whose members include bulk e-mailers, said that 37% of consumers it surveyed have bought something as a result of receiving e-mail.

• The next spam thrust will be mobile marketing ...spam messages sent to your wireless (cell) phone which increasingly are providing connectivity to the Internet. With wireless connections relatively slow and expensive, the burden of spam will be particularly burdensome to wireless network operators.

• AOL-Time Warner, Microsoft Corp. and Yahoo are "joining forces against spam." In a joint statement, the three companies "will initiate an open dialogue that will include organizations across this industry to drive technical standards and industry guidelines that can be adopted regardless of platform." All three companies were panelists at the FTC forum.

• Things have gotten so bad at Earthlink, the nation's third-largest Internet service provider, that they will offer subscribers "challenge response" technology that can block e-mail from unfamiliar senders. When an e-mail is sent to a recipient, the mail is automatically returned asking for the sender to type a phrase to "prove" there's a human at the originating end and not a computer spammer. The optional service will be free for EarthLink users. E-mail publishers and online retailers are concerned that widespread adoption could cripple their businesses. (But Earthlink may not be able to offer the free service. "Mail-Block" of Los Altos, Calif. says Earthlink's system violates their patents.)

• While industry, lawmakers and regulators in DC were talking about how to stop unsolicited e-mail, PC magazine was studying what you can do about it.

In a test of four "spam slammers," CloudMark's SpamNet <www.cloudmark.com> ($4.99/month subscription) was top rated, followed by Matador 2.0 <www.mailfrontier.com> ($29.95 program), SpamCatcher <www.mailshell.com> ($19.95), and IHateSpam <www.sunbeltsoftware.com> ($19.95), when ranked according to the percent of spam dumped into a quarantine folder. Each of the programs maintains a database of spammers and incorporates users' feedback on what's identified as spam to filter e-mails. These products are far from perfect, however, and occasionally block messages they shouldn't, and if you don't regularly visit your quarantine, you'll certainly miss a small percentage of important mail," the magazine concluded.